

Examining the Trends in Financial Support given to Science Teams for Data Analysis in Mission Proposals.

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Introduction: The goal of this summer internship research project was to analyze trends in financial support proposed for the science teams of planetary missions. The analysis focuses on the funding for Co-Investigators (Co-Is) to conduct research and/or data analysis needed to achieve the science objectives of the mission. The operational portion of the missions after launch (i.e., Phase E, including cruise and prime operations at the final destination) were examined since that is when the bulk of research is funded and conducted. The objectives of the project were to determine the average level of support for Co-Investigators, identify variation between mission competitions and over time, and determine the relationship between mission type and the amount of support requested.

Methodology: This project was conducted using data from 90 proposals submitted to six mission competitions in the Discovery and New Frontiers programs. The level of support for Co-Is was determined by examining Work Breakdown Structure (WBS) 4 (Science Analysis) for Phase E, which was further subdivided into cruise and prime operations. This data represents a proxy rather than the actual funding Co-Is receive to perform research and data analysis because not every dollar in WBS 4 is spent on this activity. Therefore, the proxy obtained in this research represents an overestimate of the funds allocated to Co-Is for research and data analysis.

Findings: Analysis shows that on average each Co-I receives approximately 3-4 years of support spread across the entirety of Phase E for science analysis. The variation among proposed missions is less than expected given the variety of factors that are expected to drive this metric (length of mission, mission type, etc.). Additionally, the level of requested support for Co-Is has been remarkably consistent across every variable considered (by competition, over time, by mission type) over the six competitions and nearly 20 years spanned by this project. This remains true for cruise, primary operations, and all of Phase E.

Conclusions: A remarkable amount of science is accomplished by the science teams of planetary missions. However, a surprisingly small amount of funding is requested to support the science analysis driving this productivity, both in terms of absolute magnitude of funding and as a portion of total mission cost. This suggests improvements are needed to refine the estimates of Co-I support and/or that Co-Is rely on other funding sources to conduct their research. Better esti-

mates can be determined by engaging directly with Co-Is and NASA centers to obtain data as well as finding other data sources. Additionally, NASA could consider mandating improved reporting of requested funding levels in mission competitions.

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